

FILE 'CAPLUS' ENTERED AT 13:40:17 ON 26 AUG 2002

L1 1 S EP792298/PN
L2 1 S US6255402/PN
L3 3659 S STABLE FREE RADICAL OR SFR OR TEMPO
L4 4198 S STABLE FREE RADICAL? OR SFR OR TEMPO
L5 18695 S RADICAL?(3A)INIT?
L6 424586 S ?PEROX? OR AZO OR L4
L7 435247 S L6 OR AIBN
L8 433999 S ?PEROX? OR AZO OR L5
L9 443865 S L8 OR AIBN
L10 742 S L4 AND L9
L11 546829 S RUBBER? OR ELAST?
L12 324063 S ?STYREN?
L13 1 S L1 AND L11 AND L12
L14 12 S L10 AND L11 AND L12

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=> d 1-12 all

L14 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2002 ACS
AN 2002:443041 CAPLUS
DN 136:405696
TI Bitumen composition
IN Marchenko, A. P.; Smirnov, N. V.
PA Russia
SO Russ., No pp. given
CODEN: RUXXE7
DT Patent
LA Russian
IC ICM C08L095-00
ICS C08L017-00
CC 58-4 (Cement, Concrete, and Related Building Materials)
Section cross-reference(s): 51
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	RU 2167898	C1	20010527	RU 2000-129925	20001201
AB	The bitumen compn. contains bitumen and a dispersed phase contg. rubber . The compn. further contains a stable free radical which is prepd. and added from outside or generated in the compn. in the presence of a radical initiator or a catalyst based on transition metal compds. Rubber is present in the form of various surface destructive particles having unsatd. bonds and their destruction products capable of radical addn. A heterogeneous reinforcing structure from compn. components is formed in bitumen. Rubber particles have various sizes. The technol. has an enhanced effectiveness due to a diminished necessity of prepg. a homogeneous compn. The resulting bitumen compn. is suitable for road paving mixts., roofing materials, hydroinsulation materials, insulation materials for pipelines and metal structures, and adhesives.				
ST	bitumen compn				
IT	Adhesives				
	Paving materials				
	Roofing				
	Thermal insulators				
	Waterproofing agents				
	(bitumen- rubber compn. for)				
IT	Bitumens				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(compn. contg. bitumen and rubber -contg. dispersed phase)				
IT	Cement				
	(in bitumen compn.)				
IT	Isoprene rubber , uses				
	Rubber , uses				
	Styrene-butadiene rubber , uses				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(in bitumen compn.)				
IT	Peroxides , uses				
	Porphyrins				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(initiators for free radical generation in bitumen compn.)				
IT	56-23-5, Carbon tetrachloride, uses 37808-75-6, Phenyl ethyl bromide				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(activator for free radical generation in bitumen compn.)				
IT	7439-89-6D, Iron, compds. 7440-42-8D, Boron, compds. 7727-54-0, Ammonium persulfate 12040-57-2, Iron chloride				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(for free radical generation in bitumen compn.)				
IT	80-43-3, Dicumyl peroxide 94-36-0, Dibenzoyl peroxide , uses 1561-49-5, Dicyclohexylperoxydicarbonate 3317-67-7, Cobalt phthalocyanin 13930-88-6, Vanadium phthalocyanine 14055-02-8, Nickel phthalocyanine 14376-21-7, Vanadium phthalocyanine				

RL: MOA (Modifier or additive use); USES (Uses)
 (initiator for free **radical** generation in bitumen compn.)

IT 9003-31-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (isoprene **rubber**, in bitumen compn.)

IT 9003-55-8
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**styrene-butadiene rubber**, in bitumen compn.)

L14 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2002 ACS
 AN 2002:276065 CAPLUS
 DN 136:310654
 TI Compositions based on thermoplastic polymers or **rubbers** with increased resistance to premature crosslinking or scorching
 IN Debaud, Fabien; Defrancisci, Alfredo; Guerret, Olivier; Kervennal, Jacques
 PA Atofina, Fr.
 SO PCT Int. Appl., 27 pp.
 CODEN: PIXXD2
 DT Patent
 LA French
 IC ICM C08J003-24
 ICS C08K005-00; C08L023-16; C08K005-00; C08K005-01; C08K005-14; C08K005-16
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 39

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002028946	A1	20020411	WO 2001-FR3011	20010928
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
FR 2819517	A1	20020719	FR 2000-12580	20001003
PRAI FR 2000-12580	A	20001003		

OS MARPAT 136:310654

AB The premature crosslinking of thermoplastic polymers contg. free **radical initiators**, such as **peroxides** or **azo** compds., and nitroxides and the scorch of **rubbers** contg. these same compds. are decreased by addn. of a promotor compd. having .gtoreq.1 double bond capable of being bifunctional or polyfunctional. The presence of the promoter also improves the crosslink d. of the cured compn., without decreasing the crosslinking time.

ST polyene promoter premature crosslinking prevention nitroxide thermoplastic; free **radical initiator** premature crosslinking prevention; diene promoter premature crosslinking prevention nitroxide thermoplastic; **rubber** scorch prevention nitroxide

IT **Azo** compounds
Peroxides, uses
 RL: CAT (Catalyst use); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Nitroxides
 RL: MOA (Modifier or additive use); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Polyenes
 RL: MOA (Modifier or additive use); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and

scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Extruded plastics
 RL: MSC (Miscellaneous)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Molded plastics, miscellaneous
 RL: MSC (Miscellaneous)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT EPDM **rubber**
 RL: POF (Polymer in formulation); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Fluoro **rubber**
 RL: POF (Polymer in formulation); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Linear low density polyethylenes
 RL: POF (Polymer in formulation); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Silicone **rubber**, uses
 RL: POF (Polymer in formulation); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Crosslinking catalysts
 Vulcanization accelerators and agents
 (neg.; decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT Crosslinking catalysts
 Vulcanization accelerators and agents
 (radical; decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT 74-85-1D, Ethene, polymers with .alpha.-olefins
 RL: POF (Polymer in formulation); USES (Uses)
 (LLDPE; decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT 25155-25-3, .alpha.,.alpha.'-Bis(tert-butylperoxy)diisopropylbenzene
 RL: CAT (Catalyst use); USES (Uses)
 (**Luperox** F 40ED; decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT 80-43-3, **Luperox** DC
 RL: CAT (Catalyst use); USES (Uses)
 (decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT 77-73-6, Dicyclopentadiene 98-83-9, .alpha.-**Methylstyrene**, uses 103-30-0, trans-Stilbene 577-55-9, o-Diisopropylbenzene 948-33-4 949-47-3, 1,3,5-Triisopropenylbenzene 1321-74-0, Divinylbenzene, uses 1605-18-1, p-Diisopropenylbenzene 2154-68-9 2226-96-2, **TEMPO**-OH 2516-92-9, CXA 5415 2564-83-2, **TEMPO** 2896-70-0, 4-Oxo**TEMPO** 3006-93-7, N,N'-m-Phenylenebis(maleimide) 3016-19-1, trans,trans-2,6-Dimethyl-2,4,6-octatriene 3229-53-6, PROXYL 3748-13-8, m-Diisopropenylbenzene

13877-91-3, Ocimene 27342-70-7, Diisopropenylbenzene 37757-85-0
70856-10-9 95407-69-5, 4-MethoxyTEMPO 148105-50-4 278600-95-6
409318-82-7 409318-83-8 409318-84-9 409318-85-0 409318-86-1
409318-87-2 409318-88-3

RL: MOA (Modifier or additive use); USES (Uses)

(decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT 9002-88-4D, Polyethylene, chlorinated and chlorosulfonated 9010-79-1, Ethylene-propylene copolymer 24937-78-8, Ethylene-vinyl acetate copolymer 25189-22-4, Butadiene-ethylene-propylene copolymer 26061-90-5, Ethylene-glycidyl methacrylate copolymer

RL: POF (Polymer in formulation); USES (Uses)

(decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

IT 9002-88-4, Polyethylene

RL: POF (Polymer in formulation); USES (Uses)

(low-d., Mitene; decreasing premature crosslinking of thermoplastic polymers and scorching of **rubbers** in presence of **peroxides** or **azo** compds. and nitroxides by polyenes)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; PATENT ABSTRACTS OF JAPAN 1999, V1999(05)
- (2) Atochem Elf Sa; EP 0903354 A 1999 CAPLUS
- (3) Atochem Elf Sa; WO 0055211 A 2000 CAPLUS
- (4) Ciba Geigy Ag; EP 0499581 A 1992 CAPLUS
- (5) Kuz'Minskii As Resin Ind Res Inst; SU 191779 A CAPLUS
- (6) Nof Corp; JP 11049865 A 1999 CAPLUS
- (7) Smedberg, A; WO 0002207 A 2000 CAPLUS
- (8) Yokohama Rubber Co Ltd; EP 0870798 A 1998 CAPLUS

L14 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2002 ACS

AN 2000:756761 CAPLUS

DN 133:322889

TI **Elastomeric** block copolymers, their production and their use

IN Brinkmann-rengel, Suzanne; Niessner, Norbert; Sutoris, Heinz Friedrich; Mc Kee, Graham Edmund; Knoll, Konrad; Christie, David

PA Basf A.-G., Germany

SO PCT Int. Appl., 52 pp.

CODEN: PIXXD2

DT Patent

LA German

IC ICM C08F293-00

ICS C08L053-02

CC 39-4 (Synthetic Elastomers and Natural Rubber)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000063267	A1	20001026	WO 2000-EP3539	20000418
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	DE 19917675	A1	20001026	DE 1999-19917675	19990419
	EP 1175452	A1	20020130	EP 2000-931063	20000418
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
PRAI	DE 1999-19917675	A	19990419		
	WO 2000-EP3539	W	20000418		
OS	MARPAT 133:322889				
AB	The invention relates to a method for the prodn. of a rubber -				

elastic block copolymer comprising at least one block A based on vinyl arom. monomers and forming a hard phase and/or at least one block B based on diene monomers and forming a **rubber-elastic** soft phase and at least one block B/A based on vinyl arom. monomers and diene monomers and forming an (optionally addnl.) **rubber-elastic** soft phase, wherein the glass transition temp. Tg of block A is preferably higher than 25.degree.C and that of block B/A is less than 25.degree.C, wherein the monomers are polymd. by controlled radical polymn. using at least one **radical** polymn. **initiator** which may include a stable N-oxyl radical. The process is relatively unaffected by the presence of water. Examples for the prodn. of **styrene-butadiene** copolymer **rubber** in the presence of benzoyl **peroxide** and 4-hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy were given.

- ST SBR prodn **peroxide** nitroxyl polymn catalyst; controlled radical block polymn **styrene** butadiene
- IT Polymerization
(atom transfer, radical; in controlled radical block polymn. of vinyl and diene monomers)
- IT Polymerization
(block, radical; controlled radical block polymn. of vinyl and diene monomers)
- IT **Styrene-butadiene rubber**, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(block; from controlled radical block polymn. of vinyl and diene monomers)
- IT Chain transfer
(catalysts; in controlled radical block polymn. of vinyl and diene monomers)
- IT Chain transfer
(in controlled radical block polymn. of vinyl and diene monomers)
- IT Chain transfer agents
Polymerization catalysts
(inifers; in controlled radical block polymn. of vinyl and diene monomers)
- IT Amine oxides
RL: CAT (Catalyst use); USES (Uses)
(tertiary; catalysts in controlled radical block polymn. of vinyl and diene monomers)
- IT 78-67-1, **AIBN** 80-15-9, Cumene **hydroperoxide**
80-43-3, Dicumyl **peroxide** 94-36-0, Benzoyl **peroxide**,
uses 105-74-8, Dilauroyl **peroxide** 2226-96-2,
4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy 2516-92-9 2564-83-2,
TEMPO 7727-21-1, Potassium **peroxydisulfate**
182235-14-9 263010-50-0
RL: CAT (Catalyst use); USES (Uses)
(catalyst in controlled radical block polymn. of vinyl and diene monomers)
- IT 25103-58-6, tert-Dodecyl mercaptan
RL: CAT (Catalyst use); USES (Uses)
(chain-transfer agent; in controlled radical block polymn. of vinyl and diene monomers)
- IT 106107-54-4P, **Styrene-butadiene** block copolymer
RL: IMF (Industrial manufacture); PREP (Preparation)
(from controlled radical block polymn. of vinyl and diene monomers)
- IT 106107-54-4P
RL: IMF (Industrial manufacture); PREP (Preparation)
(**styrene-butadiene rubber**, block; from controlled radical block polymn. of vinyl and diene monomers)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Basf Ag; WO 9620248 A 1996 CAPLUS
- (2) Basf Ag; WO 9727233 A 1997 CAPLUS
- (3) Georges, M; MACROMOLECULES 1998, V31(25), P9087 CAPLUS
- (4) Koster, R; US 5677388 A 1997 CAPLUS
- (5) Matyjaszewski, K; US 5763548 A 1998 CAPLUS
- (6) Matyjaszewski, K; US 5807937 A 1998 CAPLUS

(7) Rizzardo, E; US 4581429 A 1986 CAPLUS

L14 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2002 ACS

AN 2000:666780 CAPLUS

DN 133:253292

TI Method for preparing a **rubber** bearing a **stable free radical** and use of said **rubber** for preparing a impact-resistant vinyl aromatic polymer

IN Bertin, Denis; Boutillier, Jean-marc

PA Elf Atochem S.A., Fr.

SO PCT Int. Appl., 38 pp.

CODEN: PIXXD2

DT Patent

LA French

IC ICM C08C019-22

CC 37-6 (Plastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000055211	A1	20000921	WO 2000-FR621	20000315
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	FR 2791060	A1	20000922	FR 1999-3495	19990318
PRAI	FR 1999-3495	A	19990318		

AB **Rubbers** bearing a group of **stable free radicals** are manufd. by thermal treatment of the **rubbers** in the presence of a **stable free radical** such as bis(1-oxyl-2,2,6,6-tetramethylpiperidin-1-yl) sebacate and a **free-radical initiator** of attaching a proton to the **rubber** such as di-tert-Bu **peroxide** capable in a mixer at shear rate >5/s, stirring rate 50 rpm, and **rubber** concn. in the reaction system .gtoreq.80%. These radical-bearing **rubbers** are useful for blending with vinyl arom. polymers to give impact resistant moldings with improved brightness and transparency.

ST **rubber stable free radical** bearing impact improver manuf; vinyl arom polymer impact resistant transparent bright; **peroxide** tertiary butyl reaction **rubber** amine oxide radical; oxyltetramethylpiperidiny l sebacate reaction product **rubber** manuf

IT Butadiene **rubber**, preparation
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(Buna CB-HX 527SIC, reaction products with amine oxide radicals; prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT Impact-resistant materials
Transparent materials
(prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT EPDM **rubber**
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(reaction products with amine oxide radicals; prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT **Styrene**-butadiene **rubber**, preparation
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP

(Preparation); USES (Uses)
 (reaction products with **stable free radicals**; prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT 2516-92-9DP, Bis(1-oxyl-2,2,6,6-tetramethylpiperidin-4-yl) sebacate, reaction products with **rubbers**
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
 (CXA 5415; prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT 9003-17-2P
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
 (butadiene **rubber**, Buna CB-HX 527SIC, reaction products with amine oxide radicals; prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT 2226-96-2DP, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyl oxy, reaction products with **rubbers**
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
 (prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT 9003-53-6, **Polystyrene**
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT 110-05-4, Di-tert-butyl **peroxide** 3006-82-4, tert-Butyl **peroxy-2-ethylhexanoate**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

IT 9003-55-8P
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
 (**styrene-butadiene rubber**, reaction products with **stable free radicals**; prepg. **rubbers** bearing **stable free radicals** for prepg. impact-resistant vinyl arom. polymers with improved brightness and transparency)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Anon; RESEARCH DISCLOSURE 1994, 362, P308
 (2) Atochem Elf Sa; EP 0726280 A 1996 CAPLUS
 (3) Atochem Elf Sa; EP 0903354 A 1999 CAPLUS
 (4) Dow Chemical Co; WO 9736944 A 1997 CAPLUS
 (5) Yokohama Rubber Co Ltd; EP 0870798 A 1998 CAPLUS

L14 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2002 ACS
 AN 2000:282677 CAPLUS
 DN 133:44711
 TI Highly branched polyethylene graft copolymers prepared by means of migratory insertion polymerization combined with **TEMPO**-mediated controlled radical polymerization
 AU Baumert, Martin; Heinemann, Johannes; Thomann, Ralf; Mulhaupt, Rolf
 CS Freiburger Materialforschungszentrum und Institut für Makromolekulare Chemie, Albert-Ludwigs-Universität Freiburg, Freiburg i. Br., D-79104, Germany
 SO Macromolecular Rapid Communications (2000), 21(6), 271-276
 CODEN: MRCOE3; ISSN: 1022-1336
 PB Wiley-VCH Verlag GmbH
 DT Journal

LA English
CC 39-4 (Synthetic Elastomers and Natural Rubber)
Section cross-reference(s): 35
AB New families of highly branched polyethylenes contg. alkyl short chain branches as well as polar and non-polar long-chain branches were prepd. by combining migratory insertion copolymn. with controlled radical graft copolymn. Key intermediate was a novel alkoxyamine-functionalized 1-alkene which was copolymd. with ethylene using a palladium catalyst. The resulting highly branched polyethylene with alkoxyamine-functionalized short chain branches was used as macroinitiator to **initiate** controlled **radical** graft copolymn. of **styrene** and **styrene/acrylonitrile**. Novel polyethylene graft copolymers with mol. masses of $M_w > 100\,000$ g/mol and narrow polydispersities were obtained. Transmission electron microscopic studies (TEM) and the presence of two glass transition temps. at -67 and $+100$.degree.C indicated microphase sepn.
ST controlled **TEMPO** deriv graft polymn **styrene**
acrylonitrile branched polyethylene; thermoplastic **elastomer**
synthesis branched polyethylene controlled graft polymn macroinitiator
IT Polymerization
(graft, controlled; prepn. of highly branched polyethylene graft copolymers by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT Polymer morphology
(phase, microphase-sepn.; of highly branched polyethylene graft copolymers prepd. by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT Thermoplastic **rubber**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of highly branched polyethylene graft copolymers by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT Glass transition
(two; of highly branched polyethylene graft copolymers prepd. by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT 259200-22-1P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(macroinitiator; prepn. of highly branched polyethylene graft copolymers by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT 203930-85-2
RL: CAT (Catalyst use); USES (Uses)
(prepn. of highly branched polyethylene graft copolymers by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT 259200-21-0P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of highly branched polyethylene graft copolymers by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT 112-38-9, Undecylenic acid 161776-41-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of highly branched polyethylene graft copolymers by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
IT 106826-12-4P, Ethylene-**styrene** graft copolymer 106826-13-5P, Acrylonitrile-Ethylene-**styrene** graft copolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(thermoplastic **elastomer**; prepn. of highly branched polyethylene graft copolymers by means of migratory insertion polymn. combined with **TEMPO**-mediated controlled radical polymn.)
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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- (2) Hawker, C; Macromolecules 1996, V29, P5245 CAPLUS
- (3) Hawker, C; Macromolecules 1998, V31, P213 CAPLUS
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L14 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2002 ACS

AN 1999:784163 CAPLUS

DN 132:23516

TI Impact-resistant composite of vinyl-aromatic polymer obtained by polymerization of a vinyl aromatic monomer in the presence of a **stable free radical** and a polymerization **initiator**

IN Boutillier, Jean-Marc

PA Elf Atochem S.A., Fr.

SO PCT Int. Appl., 44 pp.

CODEN: PIXXD2

DT Patent

LA French

IC ICM C08F279-02

ICS C08L051-04; C08F291-02

CC 37-6 (Plastics Manufacture and Processing)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9962975	A1	19991209	WO 1999-FR1272	19990531
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2779437	A1	19991210	FR 1998-6940	19980603
AU 9938332	A1	19991220	AU 1999-38332	19990531
EP 1091988	A1	20010418	EP 1999-920946	19990531
R: AT, BE, DE, ES, FR, GB, IT, NL, SE, PT, FI				
JP 2002517532	T2	20020618	JP 2000-552181	19990531
PRAI FR 1998-6940	A	19980603		
WO 1999-FR1272	W	19990531		

AB The composite comprises a vinylarom. polymer matrix, preferably **polystyrene**, and **rubber** particles; the matrix is prepd. in the presence of **rubber** particles by **radical** polymn. with **peroxide initiator** ratio of 0.05 to <1 mol for a mixt. of 100 parts monomer, 2-35 parts **rubber** particles, and 0-50 parts solvent. The **rubber** particles [butadiene **rubber**] have different mol. wt. and morphologies, e.g., rough shape resembling salami, a labyrinth, layered such as an onion and/or capsule and the mixt. of particles and **styrene** has a viscosity 60 - 300 mPa-s, at 25%. The **peroxide** initiator is selected from tert-Bu **peroxide**, bis(tert-butylperoxy)-1,1-cyclohexane, and bis(tert-butylperoxy)-1,1-trimethyl-3,3,5-cyclohexane and polymn. of **styrene** is carried out at 90-130.degree. under phase inversion conditions. The composite has a fluidity index of >15, at 210.degree., Vicat temp. is >94.degree., and Izod impact strength is >8. A compn. was prepd. by mixing **styrene**, mineral oil plasticizer [Primol 352, ESSO], antioxidant [Irganox 1076], and butadiene **rubber** particles; upon fluidization, tert-Bu **peroxide** in hydrocarbon soln. [Luperox TBIC-M75], and

4-hydroxy-2,2,6,6-tetramethyl piperidinyloxy (**TEMPO-OH**) were added and the mixt. was heated to 120.degree. to effect polymn. The composite obtained has Izod impact strength of 14.1, brightness index of 21, and contains 8.5% butadiene **rubber** particles.

- ST **polystyrene** polybutadiene **rubber** composite prepn
radical polymn; **rubber** particle morphol impact resistant
polystyrene composite; brightness Izod impact strength
polystyrene rubber composite
- IT Butadiene **rubber**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(CBHX 527SIC; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT Impact strength
(Izod; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT Antioxidants
Impact-resistant materials
Microviscosity
Particle shape
Plasticizers
(manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT Polymerization
(radical; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT Paraffin oils
RL: NUU (Other use, unclassified); USES (Uses)
(white oils, Primol 352, solvent; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT 2082-79-3, Irganox 1076
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(antioxidant; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT 9003-17-2
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(butadiene **rubber**, CBHX 527SIC; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT 9003-53-6P, **Polystyrene**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT 110-05-4, tert-Butyl **peroxide** 2226-96-2, **TEMPO-OH**
RL: CAT (Catalyst use); USES (Uses)
(**radical initiator**; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)
- IT 2372-21-6, **Luperox** TBIC-M75
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufg. process to obtain impact-resistant composites of vinyl-arom. polymer matrix and butadiene **rubber** particles)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Atochem Elf SA; EP 0903354 A 1999 CAPLUS
- (3) Bloch, M; WO 9746693 A 1997 CAPLUS
- (4) Buna AG; DD 294493 A 1991 CAPLUS
- (5) McSheffrey, B; WO 9726944 A 1997
- (6) Mc Kee Graham, E; WO 9615166 A 1996 CAPLUS

DN 130:253125
 TI Process for manufacture of shock resistant vinyl aromatic polymer blend
 with an **elastomer** containing a group that generates
stable free radicals
 IN Boutillier, Jean-Marc; Forges, Nathalie
 PA Elf Atochem S.A., Fr.
 SO Eur. Pat. Appl., 14 pp.
 CODEN: EPXXDW
 DT Patent
 LA French
 IC ICM C08C019-22
 ICS C08F279-02; C08F293-00; C08L051-04
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 39

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 903354	A1	19990324	EP 1998-116845	19980907
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	FR 2768738	A1	19990326	FR 1997-11693	19970919
	FR 2768739	A1	19990326	FR 1998-6795	19980529
	NO 9804271	A	19990322	NO 1998-4271	19980915
	US 6255402	B1	20010703	US 1998-157309	19980918
	CN 1214351	A	19990421	CN 1998-120555	19980919
	JP 11147912	A2	19990602	JP 1998-266804	19980921
PRAI	FR 1997-11693	A	19970919		
	FR 1998-6795	A	19980529		

AB The process comprises thermal treatment of the **elastomer**, preferably polybutadiene, in the presence of a free **radical initiator** in soln. at 50-150.degree. to obtain the modified **elastomer** contg. 0.5 to 2 free radical generating groups per chain length of **elastomer**. The modified **elastomer** is then combined with a vinyl arom. monomer, preferably **styrene**, and radical polymn. is carried out at 100-200.degree. in the absence of initiator or at 90-160.degree. in the presence of an initiator to obtain a composite where the matrix is the vinyl polymer and the **elastomer** particles are present in domains of various morphologies, e.g., labyrinth, spherulitic, capsule-like. Thus, ethylbenzene and polybutadiene [HX 527, Bayer] were mixed thoroughly, then **TEMPO** and **Luperox** TBIC-M75 **peroxide** were added and the mixt. was stirred at 50 rpm in reactor at 120.degree. for 2 h; **styrene** was added and the temp. was maintained at 120.degree. for sufficient time to attain 60% solidification into a composite where the particulates had av. size of 0.25 .mu.m and capsule-like morphol.

ST radical functionalized **elastomer** polymn vinyl monomer; blend **elastomer** particle radical functionalization vinyl polymer; **peroxide initiator radical** polymn vinyl monomer functionalized **elastomer**; morphol blend vinyl polymer radical functionalized **elastomer** particle

IT **Styrene-butadiene rubber**, uses
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (block, diblock, Buna BL 6533, free-radical functionalized, blends; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT Butadiene **rubber**, uses
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (of 1,2-configuration, free-radical functionalized, HX 527, blends; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT Polymer morphology
 (phase; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates

stable free radicals)

IT Impact-resistant materials
(process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT Polymer blends
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT Polymerization catalysts
(radical, **peroxides**; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT Polymerization
(radical; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT 9003-17-2
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(1,2-Butadiene **rubber**, free-radical functionalized, HX 527, blends; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT 9003-53-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(polybutadiene blends; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT 2372-21-6, **Luperox** TBIC-M 75 2564-83-2, **TEMPO**
RL: CAT (Catalyst use); USES (Uses)
(**radical initiator**; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT 100-41-4, Ethylbenzene, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

IT 106107-54-4
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**styrene-butadiene rubber**, block, diblock, Buna BL 6533, free-radical functionalized, blends; process for manuf. of shock resistant vinyl arom. polymer blends with **elastomer** contg. a group that generates **stable free radicals**)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
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- (2) Basf Ag; DE 4440675 A 1996 CAPLUS
- (3) Buna; DD 294493 A 1991 CAPLUS
- (4) Commw Scient Ind Res Org; EP 0135280 A 1985 CAPLUS
- (5) Dow Chemical Co; WO 9736944 A 1997 CAPLUS
- (6) Pradel, J; WO 9746593 A 1997 CAPLUS

L14 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2002 ACS

AN 1998:793851 CAPLUS

DN 130:125706

TI Polymer grafting onto carbon black by use of **TEMPO**-terminated **polystyrene** with controlled molecular weight

AU Yoshikawa, Sachio; Machida, Seiichi; Tsubokawa, Norio

CS Graduate School of Science and Technology, Niigata University, Niigata, 950-2181, Japan

SO Journal of Polymer Science, Part A: Polymer Chemistry (1998), 36(17),

3165-3172

CODEN: JPACEC; ISSN: 0887-624X

PB John Wiley & Sons, Inc.

DT Journal

LA English

CC 37-2 (Plastics Manufacture and Processing)

Section cross-reference(s): 39, 57

AB **Polystyrene** with controlled mol. wt. and narrow mol. wt. distribution was attached onto carbon black surface by trapping polymer radicals formed by thermal dissocn. of 2,2,6,6-tetramethyl-1-piperidinyloxy (**TEMPO**)-terminated **polystyrene** (PSt-**TEMPO**) at the carbon black surface. PSt-**TEMPO** was prepd. by living radical polymn. of St with the benzoyl peroxide /**TEMPO** system. When PSt having no terminal **TEMPO** moiety was heated with carbon black, no attachment of PSt onto the surface was obsd. Heating of PSt-**TEMPO** with furnace black in m-xylene at 125.degree. led to 16% surface modification with PSt ($M_n = 3.2 \times 10^3$; $M_w/M_n = 1.07$). The PSt radicals formed by the thermal dissocn. of the C-ON bond between PSt and **TEMPO** are trapped by polycondensed arom. rings of carbon black. The mole no. of PSt chains on the carbon black surface decreased with increasing mol. wt. of PSt-**TEMPO**. The PSt-treated carbon black formed stable colloidal dispersions in THF which is of interest in applications in formulating polymers, e.g., compounding resins and rubbers.

ST carbon black surface modification **TEMPO** terminated **polystyrene**; colloidal dispersion carbon black **polystyrene** surface treatment

IT Colloids

Surface area

Wettability

(surface modification of carbon black via thermal dissocn. of **TEMPO**-terminated **polystyrene** and dispersibility of modified material)

IT Carbon black, properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(surface modification of carbon black via thermal dissocn. of **TEMPO**-terminated **polystyrene** and dispersibility of modified material)

IT 2564-83-2, **TEMPO**

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(reaction products with **polystyrene**; surface modification of carbon black via thermal dissocn. of **TEMPO**-terminated **polystyrene** and dispersibility of modified material)

IT 9003-53-6D, **Polystyrene**, **TEMPO**-terminated

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(surface modification of carbon black via thermal dissocn. of **TEMPO**-terminated **polystyrene** and dispersibility of modified material)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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- (2) Fujiki, K; Polym J 1990, V22, P661 CAPLUS
- (3) Georges, M; Macromolecules 1993, V26, P5316
- (4) Hawkar, C; Angew Chem Int Ed Engl 1995, V34, P1456
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- (8) Hey, M; Discuss Faraday Soc 1953, V14, P216
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- (20) Wang, C; Polym Bull 1996, V37, P305 CAPLUS
- (21) Yoshida, E; Bull Chem Soc Jpn 1997, V70, P275 CAPLUS
- (22) Yoshikawa, S; Polym J 1996, V28, P317 CAPLUS

L14 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2002 ACS

AN 1998:621247 CAPLUS

DN 129:261036

TI Controlled atom or group-transfer radical polymerization, coupling of molecules, multifunctional polymerization initiators, and formation of telechelic functional material

IN Matyjaszewski, Krzysztof; Gaynor, Scott G.; Coca, Simion

PA Carnegie Mellon University, USA

SO PCT Int. Appl., 230 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C08F004-10

ICS C08F008-00; C08F008-38

CC 35-3 (Chemistry of Synthetic High Polymers)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9840415	A1	19980917	WO 1998-US4333	19980311
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9866877	A1	19980929	AU 1998-66877	19980311
	EP 966489	A1	19991229	EP 1998-908979	19980311
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2001514697	T2	20010911	JP 1998-539631	19980311
PRAI	US 1997-39543P	P	19970311		
	US 1997-41620P	P	19970402		
	US 1998-18554	A	19980204		
	WO 1998-US4333	W	19980311		

AB A process for ATRP polymn. and coupling of mols. by radical processes is improved by the selection of various ligands, counterions, transition metal compds. and/or zero oxidn. state transition metals to give improved control over mol. wt., mol. wt. distribution, functionality and compns. of the products formed. The process is useful not only in polymn. but also in coupling of mols. of any size, by generation and coupling of the appropriate radicals, and in modifying chain ends of functionalized polymers. Thus, **styrene** was bulk polymd. in the presence of iron powder, DMF, and 1-(bromoethyl)benzene for 9 h at 110.degree. with 85% conversion to polymer having Mn 8960 and Mw/Mn 1.33.

ST group transfer radical polymn vinyl compd; catalyst radical polymn coupling mol; **polystyrene** prepn catalyst; bromoethylbenzene **initiator** group transfer **radical** polymn; iron catalyst group transfer radical polymn; DMF ligand group transfer radical polymn

IT Alcohols, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)

(amino, prepn. of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Ligands

RL: CAT (Catalyst use); USES (Uses)

(controlled atom or group-transfer radical polymn., coupling of mols.,

multifunctional polymn. initiators, and formation of telechelic functional material)

IT Polymerization
Polymerization catalysts
(group-transfer; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Polymers, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(hyperbranched or bottle-brush, prepn. of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Silsesquioxanes
RL: CAT (Catalyst use); USES (Uses)
(initiator; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Polysiloxanes, preparation
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(macroinitiators and macromonomers; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Amines, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(primary, vinyl polymers terminated with; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Amines, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(secondary, vinyl polymers terminated with; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Polymers, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(star-branched, prepn. from bromine-terminated **polystyrene** and divinylbenzene; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Macromonomers
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(terminated siloxanes; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT Crosslinking
(thermal; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 7631-86-9, Silica, uses
RL: CAT (Catalyst use); USES (Uses)
(activated with silanes, catalyst support; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 78-67-1, **AIBN** 1313-13-9, Manganese oxide, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses 7440-18-8, Ruthenium, uses 7440-19-9, Samarium, uses 7440-22-4, Silver, uses 7440-47-3, Chromium, uses 7440-50-8, Copper, uses 7447-39-4, Copper (II) chloride, uses 7773-01-5, Manganese chloride 7787-70-4, Copper (I) bromide 7789-45-9, Copper (II) bromide 7789-46-0, Iron (II) bromide 10025-73-7, Chromium trichloride 10031-26-2, Iron tribromide 10049-05-5, Chromium dichloride 12597-70-5, Copper bronze 26490-65-3, Cuprous hexafluorophosphate 34946-82-2, Copper ditriflate 37234-97-2 126949-65-3
RL: CAT (Catalyst use); USES (Uses)
(catalyst; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of

- telechelic functional material)
- IT 5468-93-9DP, **polystyrene** terminated with 85673-60-5DP, **polystyrene** terminated with
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 4648-54-8D, Trimethylsilyl azide, **polystyrene** terminated with
 RL: NUU (Other use, unclassified); USES (Uses)
 (controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 623-24-5DP, .alpha.,.alpha.'-Dibromo-p-xylene, **polystyrene** terminated with
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 2564-83-2, **TEMPO**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (coupling with alkyl halides; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 585-71-7, 1-Phenylethyl bromide 600-00-0, Ethyl 2-bromoisobutyrate 5445-17-0, Methyl 2-bromopropionate 19481-82-4, 2-Bromopropionitrile
 RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
 (initiator and coupling with tetramethylpiperidinyloxy; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 213453-21-5P
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (initiator, prepn. of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 79-07-2, 2-Chloroacetamide 80-58-0, 2-Bromobutyric acid 98-59-9, Tosyl chloride 104-81-4, 4-Methylbenzyl bromide 106-95-6, Allyl bromide, uses 124-63-0, Methanesulfonyl chloride 535-11-5, Ethyl 2-bromopropionate 589-15-1, 4-Bromobenzyl bromide 590-17-0, Bromoacetonitrile 598-54-9, Copper monoacetate 672-65-1, 1-Phenylethyl chloride 776-74-9, Bromodiphenylmethane 1643-19-2, Tetrabutylammonium bromide 2052-01-9, 2-Bromoisobutyric acid 2549-51-1, Vinyl chloroacetate 2916-14-5, Allyl chloroacetate 3012-37-1, Benzyl thiocyanate 3042-81-7, Methyl .alpha.-bromophenyl acetate 5061-21-2 5468-93-9 17201-43-3, 4-Cyanobenzyl bromide 17639-93-9, Methyl 2-chloropropionate 18301-66-1 29263-94-3, Diethyl 2-bromo-2-methylmalonate 39149-80-9, tert-Butyl 2-bromopropionate 56905-18-1, Methyl 2-iodopropionate 68986-76-5, Copper (I) 2-thiophenecarboxylate 82280-42-0 87129-38-2D, Allyl-2-bromopropionate, reaction products with cyclosiloxanes 208446-93-9 213137-90-7 213453-16-8D, reaction products with allylbromopropionate
 RL: CAT (Catalyst use); USES (Uses)
 (initiator; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 102-82-9, Tributyl amine 603-35-0, Triphenyl phosphine, uses
 RL: CAT (Catalyst use); USES (Uses)
 (ligand, catalyst; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)
- IT 17678-99-8P 33527-91-2P 204580-80-3P
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (ligand, prepn. of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 68-12-2, DMF, uses 110-18-9 148-24-3, 8-Hydroxyquinoline, uses 366-18-7, 2,2'-Bipyridine 1116-76-3, Tri(n-octylamine) 2085-33-8 2212-32-0, 2-([2-(Dimethylamino)ethyl]methylamino)ethanol 3030-47-5, N,N,N',N',N''-Pentamethyltriethylenetriamine 3083-10-1, 1,1,4,7,10,10-Hexamethyltriethylenetetramine 41203-22-9, 1,4,8,11-Tetramethyl-1,4,8,11-tetraazacyclotetradecane 72230-93-4, 4,4'-Di(5-nonyl)-2,2'-bipyridine 72914-19-3
 RL: CAT (Catalyst use); USES (Uses)
 (ligand; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 116629-00-6P
 RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (macroinitiator, prepn. and reaction of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 213453-20-4P, 2,2'-Azobis[2-methyl-N-(2-(2-bromoisobutyryloxy)ethyl)propionamide-**styrene** copolymer
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (macroinitiator, prepn. of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 74143-32-1DP, poly(hexamethylcyclotrisiloxane) terminated with 99349-00-5DP, poly(hexamethylcyclotrisiloxane) terminated with 213453-17-9P, Allyl-2-bromopropionate-2,4,6,8-tetramethylcyclotrisiloxane copolymer
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (macroinitiator, prepn. of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 9003-27-4DP, Polyisobutene, **styrene**-terminated 25038-76-0P, Polynorbornene 25038-78-2P, Dicyclopentadiene homopolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (macroinitiator, prepn. of; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 25084-99-5DP, Hexamethylcyclotrisiloxane homopolymer, (chlorodimethylsilylethyl)**styrene**- or [(chloromethyl)phenylethyl]dimethylchlorosilane-terminated
 RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (macromonomer or macroinitiator; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 5958-97-4DP, poly(hexamethylcyclotrisiloxane) terminated with 213453-18-0DP, poly(hexamethylcyclotrisiloxane) terminated with
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (macromonomer; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 71-43-2, Benzene, miscellaneous 96-49-1, Ethylene carbonate 101-84-8 108-32-7
 RL: MSC (Miscellaneous)
 (polymn. solvent; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 7439-89-6, Iron, uses
 RL: CAT (Catalyst use); USES (Uses)
 (powder, catalyst; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 9003-53-6DP, **Polystyrene**, bromine-terminated
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT

(Reactant or reagent)
 (prepn. and coupling of; controlled atom or group-transfer radical
 polymn., coupling of mols., multifunctional polymn. initiators, and
 formation of telechelic functional material)

IT 213453-19-1P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (prepn. and polymn. of; controlled atom or group-transfer radical
 polymn., coupling of mols., multifunctional polymn. initiators, and
 formation of telechelic functional material)

IT 9003-21-8, Methyl acrylate homopolymer
 RL: CAT (Catalyst use); USES (Uses)
 (prepn. of; controlled atom or group-transfer radical polymn., coupling
 of mols., multifunctional polymn. initiators, and formation of
 telechelic functional material)

IT 80-62-6DP, graft copolymer with chlorosulfonated polyethylene
 100-42-5DP, graft copolymer with chlorosulfonated polyethylene
 109-73-9DP, n-Butylamine, vinyl polymers terminated with 5888-33-5DP,
 Isobornyl acrylate, graft copolymers with brominated **rubbers**
 9002-88-4DP, chlorosulfonated, graft polymer with vinyl compds.
 9003-21-8DP, Methyl acrylate homopolymer, functional group-terminated
 9003-49-0P, Butyl acrylate homopolymer 9003-53-6P, **Polystyrene**
 9003-54-7P, Acrylonitrile-**styrene** copolymer 9010-85-9DP,
 Isobutene-isoprene copolymer, brominated, graft polymers with vinyl
 compds. 9011-14-7P, Poly(methyl methacrylate) 13325-10-5DP,
 4-Aminobutanol, vinyl polymers terminated with 25014-41-9P,
 Acrylonitrile homopolymer 25067-63-4P, Methyl acrylate-vinyl acetate
 copolymer 25154-86-3P, 2-(Dimethylamino)ethyl methacrylate homopolymer
 25213-17-6P, Acrylonitrile-isobutene copolymer 25232-27-3P, tert-Butyl
 acrylate homopolymer 25249-16-5P, 2-Hydroxyethyl methacrylate
 homopolymer 25266-62-0P, Allyl acrylate polymer 25767-47-9P, Butyl
 acrylate-**styrene** copolymer 26022-14-0P, 2-Hydroxyethyl
 acrylate polymer 26374-91-4P, Glycidyl acrylate homopolymer
 26588-80-7P, Butyl acrylate-2-hydroxyethyl methacrylate-methyl
 methacrylate-**styrene** copolymer 26628-22-8DP, Sodium azide,
 vinyl polymers terminated with 30323-87-6P, Isobornyl acrylate
 homopolymer 30811-69-9P, Vinyl acrylate polymer 31049-58-8P, Butyl
 acrylate-isobutylene copolymer 40704-75-4P, N-(2-
 Hydroxypropyl)methacrylamide polymer 56467-21-1P, Butyl
 acrylate-3-(trimethoxysilyl)propyl methacrylate copolymer 61128-14-1DP,
 Isobutylene-p-**methylstyrene** copolymer, brominated, graft
 copolymers with vinyl compds. 107227-34-9P, Acrylonitrile-isobutylene
 alternating copolymer 108150-11-4P, Methyl acrylate-methyl methacrylate
 block copolymer 108501-18-4P, Butyl acrylate-methyl methacrylate block
 copolymer 110772-34-4P, Butyl acrylate-**styrene** block copolymer
 112965-31-8P, Acrylonitrile-butyl acrylate-**styrene** block
 copolymer 121264-61-7P, Butyl acrylate-2-hydroxyethyl acrylate block
 copolymer 136234-79-2P, N-Cyclohexyl maleimide-**styrene**
 alternating copolymer 137168-27-5P, Acrylonitrile-butyl acrylate block
 copolymer 144719-01-7P, Methyl acrylate-methyl methacrylate-
styrene block copolymer 166664-50-2P, Butyl acrylate-isobutylene
 alternating copolymer 188065-74-9P, 2-(2-Bromopropionyloxy)ethyl
 acrylate homopolymer 213453-03-3P 213453-06-6P 213453-09-9P
 213453-12-4P, **Styrene**-vinyl chloride-vinyl chloroacetate graft
 copolymer 213453-13-5P, Butyl acrylate-2-ethylhexyl acrylate-Zonyl TAN
 block copolymer 213453-22-6P 213555-59-0P, Acrylonitrile-methyl
 acrylate block copolymer
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (prepn. of; controlled atom or group-transfer radical polymn., coupling
 of mols., multifunctional polymn. initiators, and formation of
 telechelic functional material)

IT 154554-67-3P 212128-87-5P 212128-91-1P 212129-00-5P 213453-14-6P,
 Isobornyl acrylate-isobutene-methyl acrylate-methyl methacrylate-
styrene block copolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of; controlled atom or group-transfer radical polymn., coupling
 of mols., multifunctional polymn. initiators, and formation of

telechelic functional material)

IT 107-21-1, 1,2-Ethanediol, reactions 563-76-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant in initiator prepn.; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 49864-98-4, Hexakis(4-hydroxymethylphenoxy)cyclotriphosphazene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 75-09-2, reactions 20769-85-1, 2-Bromoisobutyryl bromide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with azobis[methyl(hydroxyethyl)propionamide]; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 61551-69-7, 2,2'-Azobis[2-methyl-N-(2-hydroxyethyl)propionamide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with haloalkyl halide; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 50975-76-3 103526-27-8
 RL: NUU (Other use, unclassified); USES (Uses)
 (silica activated by; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

IT 100-66-3, Anisole, miscellaneous 25321-22-6, Dichlorobenzene
 RL: MSC (Miscellaneous)
 (solvent; controlled atom or group-transfer radical polymn., coupling of mols., multifunctional polymn. initiators, and formation of telechelic functional material)

L14 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2002 ACS

AN 1998:600027 CAPLUS

DN 129:276525

TI Preparation of **styrene**-based polymers with narrow molecular-weight distribution and their moldings

IN Fujita, Masayuki; Kinohara, Isao

PA Sumitomo Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08F004-36

ICS B29C045-00; B29C047-00; B29C067-20; C08F002-38; C08F012-00; B29K025-00

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10245411	A2	19980914	JP 1997-51768	19970306
AB	Title polymers are prepd. by polymg. styrene -based compds. in the presence of radical scavengers and polyfunctional peroxides indicated by -(R1OOR2O)k- [R1, R2 = -(CH2)LCR1R3(CH2)mCR2R4(CH2)n-, -CO(CH2)LCR1R3(CH2)mCR2R4(CH2)nCO-, -CO-1,4-C6H10-CO- (R1-4 = H, C1-5 alkyl, cyclohexyl, Ph; L, m, n = 0-20); k = 2-30] under satisfying I = 10-1000 and C = 100-1000 [I = active O amt. (wt. ppm); C = radical scavenger concn. (wt. ppm)] at 100-140.degree. up to conversion 40-80%. Moldings are obtained by injection-, extrusion-, or expansion-molding of the above polymers. Thus, styrene was polymd. in the presence of 1000 wt. ppm 2,2,6,6-tetramethyl-1-piperidinyloxy and 683 wt. ppm Polyper AZ [poly(2,5-dimethyl-2,5-diperazolate)] at 110.degree. up to conversion 40% to give a polymer having Mw 115,000 and Mw/Mn 1.6.				
ST	radical scavenger TEMPO styrene polymer prepn; polyfunctional peroxide styrene radical polymn;				

molding **styrene** polymer prepn; mol wt distribution
styrene polymer prepn

IT **Peroxides**, uses
 RL: CAT (Catalyst use); USES (Uses)
 (polyfunctional, polymn. initiators; prepn. of **styrene**-based
 polymers with narrow mol.-wt. distribution and their moldings)

IT Molding of plastics and **rubbers**
 Radical scavengers
 (prepn. of **styrene**-based polymers with narrow mol.-wt.
 distribution and their moldings)

IT Polymerization catalysts
 (radical, polyfunctional **peroxides** and radical scavengers;
 prepn. of **styrene**-based polymers with narrow mol.-wt.
 distribution and their moldings)

IT 125920-07-2 213832-42-9, Polyper 25AZ
 RL: CAT (Catalyst use); USES (Uses)
 (polymn. initiator; prepn. of **styrene**-based polymers with
 narrow mol.-wt. distribution and their moldings)

IT 9003-53-6P, **Polystyrene**
 RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical
 process); TEM (Technical or engineered material use); PREP (Preparation);
 PROC (Process); USES (Uses)
 (prepn. of **styrene**-based polymers with narrow mol.-wt.
 distribution and their moldings)

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy 2564-83-2,
 2,2,6,6-Tetramethyl-1-piperidinyloxy 2896-70-0, 4-Oxo-2,2,6,6-
 tetramethyl-1-piperidinyloxy 3229-53-6, 2,2,5,5-Tetramethyl-1-
 pyrrolidinyloxy 3229-61-6, Phenyl-tert-butyl nitroxide 14691-88-4,
 4-Amino-2,2,6,6-tetramethyl-1-piperidinyloxy 25554-61-4 84077-81-6
 RL: CAT (Catalyst use); USES (Uses)
 (radical scavenger; prepn. of **styrene**-based polymers with
 narrow mol.-wt. distribution and their moldings)

L14 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2002 ACS
 AN 1997:299204 CAPLUS
 DN 126:277900
 TI **Styrene** polymers, their preparation and their use
 IN Fujita, Masayuki; Kihara, Hayato
 PA Sumitomo Chemical Co., Ltd., Japan
 SO Ger. Offen., 8 pp.
 CODEN: GWXXBX

DT Patent
 LA German
 IC ICM C08F112-08
 ICS C08L025-06; C08J005-00
 CC 35-4 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 37

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19636058	A1	19970313	DE 1996-19636058	19960905
	JP 09071606	A2	19970318	JP 1995-229374	19950906
	JP 3296153	B2	20020624		
	GB 2304721	A1	19970326	GB 1996-18677	19960906
	GB 2304721	B2	19971105		
	CN 1159451	A	19970917	CN 1996-122705	19960906
	US 5723554	A	19980303	US 1996-709271	19960906
PRAI	JP 1995-229374	A	19950906		

AB **Styrene** polymers with wt.-av. mol. wt. (Mw) 200,000-500,000,
 no.-av. mol. wt. (Mn) 100,000-450,000 and Mw/Mn 1.1-2 are obtained by bulk
 radical polymn. in the presence of a radical starter and a radical trap of
 defined concns. and ratios at 100-140.degree., to 40-85% conversion. The
 polymer product has good flow properties and is suitable for molding
 processes. The prepn. of **polystyrene** was exemplified using
 Bz2O2 and **TEMPO** as catalyst and trap, resp.

ST **styrene** polymn **radical initiator** trap;
polystyrene prepn catalyst inhibitor

IT Polymerization catalysts
 (bulk, radical; in prepn. of **polystyrene** using
radical initiator and trap)

IT Polymerization
 (bulk; in prepn. of **polystyrene** for molding processes)

IT Molding of plastics and **rubbers**
 (forming, foam; prepn. of **polystyrene** for)

IT Radical scavengers
 (in prepn. of **polystyrene** using **radical**
initiator and trap)

IT Molding of plastics and **rubbers**
 (injection; prepn. of **polystyrene** for)

IT Extrusion of plastics and **rubbers**
 (prepn. of **polystyrene** for)

IT 94-36-0, Dibenzoyl **peroxide**, uses 2564-83-2, **TEMPO**
 RL: CAT (Catalyst use); USES (Uses)
 (in polymn. of **styrene** using **radical**
initiator and trap)

IT 9003-53-6P, **Polystyrene**
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (polymn. of **styrene** using **radical initiator**
 and trap)

L14 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2002 ACS

AN 1961:62378 CAPLUS

DN 55:62378

OREF 55:11912c-g

TI Inhibition of the polymerization of **styrene** by **stable**
free radicals

AU Tudos, Ferenc; Berezhnikh, Tamara F.; Azori, Maria

CS Hung. Acad. Sci., Budapest

SO Acta Chim. Acad. Sci. Hung. (1960), 24, 91-106

DT Journal

LA Russian

CC 31 (Synthetic Resins and Plastics)

AB Inhibition of the initiated polymerization of **styrene** (I) by two
stable free radicals, diphenylpicrylhydrazine
 (II) and 1,1-diphenyl-2-(2,6-dinitrophenyl)hydrazine (III), was
 investigated. III was prepd. by the reaction of 1,1-diphenylhydrazine
 with 2,6-dinitrochlorobenzene at 100.degree. in the presence of KF and
 Na₂CO₃. The product (m. 138.degree., red-orange in color, and very stable
 to air oxidn.) was subsequently oxidized with AgO to give the free
 radical. In establishing the mechanism of the polymerization inhibited by
 II and III, besides initiation, propagation, and termination, the reaction
 between the free radical and the polymeric radical and the reaction
 between the monomer and the free radical must be considered. II reacted
 with I according to a pseudomonomol. reaction at a ratio of 1:1; the
 resulting product was a **rubbery** material. The half-time of the
 reaction was 16-17 hrs. and the rate const., $2k_m = 6.88 \cdot 10^{-4}$
 min.^{-1} , was calcd. from the relation $z = z_0 e^{-2k_m t}$, where z is concn. of
 the free **radical**, mole/l.; m_0 **initial** monomer concn.,
 mole/l.; t the period of inhibition, hr. This relation holds at $x_0 = 0$
 (x_0 is concn. of the initiator). A plot of t_i as a function of z_0/x_0
 resulted in a straight line. After the termination of the inhibition
 period, the polymerization proceeded at a const. rate. At this stage the
 reaction can be described by the following relation: $\log m_0/m =$
 $K \cdot \sqrt{x_i} (t - t_i)$, where x_i is the initiator concn. at $t = t_i$. The
 exptl. results showed that K remained const. and had an av. value of 1.93
 $\cdot 10^{-3} \sqrt{\text{mole}/\text{min.}}$ when II was used as the inhibitor
 and $1.99 \cdot 10^{-3}$ when III was used. No side reactions were observed
 involving I and III, but the rate of polymerization after the inhibition
 period was slightly retarded. Good agreement between the rate consts. of
 initiation obtained with II and III under exactly defined kinetic
 conditions proved the usefulness of **stable free**
radicals for the detn. of the initiation rates. However, to
 achieve good results it was necessary to obtain the data from a large no.
 of expts. and to take into consideration the presence of the side

reactions. 18 references.

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L1 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2002 ACS

AN 1996:431381 CAPLUS

DN 125:88150

TI Manufacture of impact-resistant molding compositions modified with rubber containing radical-forming groups

IN Mac Kee, Graham Edmund; Moors, Rainer; Gausepohl, Hermann; Seibring, Joachim

PA BASF A.-G., Germany

SO Ger. Offen., 6 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM C08L051-04

ICS C08L033-06; C08K007-00; C08F220-18; C08F002-18; C08F004-04;

C08F004-28

ICA C08L033-14; C08F236-00; C08F212-08; C08F220-44

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 35, 39

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4440675	A1	19960515	DE 1994-4440675	19941114
	WO 9615166	A1	19960523	WO 1995-EP4474	19951114
	W: CN, JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 792298	A1	19970903	EP 1995-937072	19951114 <--
	EP 792298	B1	19980909		
	R: BE, DE, ES, FR, GB, IT, NL				
	CN 1163625	A	19971029	CN 1995-196224	19951114
	CN 1066459	B	20010530		
	JP 10508651	T2	19980825	JP 1995-515735	19951114
	ES 2120776	T3	19981101	ES 1995-937072	19951114
	US 5910553	A	19990608	US 1997-836309	19970512
PRAI	DE 1994-4440675	A	19941114		
	WO 1995-EP4474	W	19951114		

AB The title compns. are stable dispersions of acrylic rubbers in thermoplastic (co)polymer matrix. The rubbers having defined particle size comprise comonomers generating free radicals at elevated temp. The presence of these comonomers enhances cohesion at rubber particle-matrix interfaces. Thus, test specimens injection-molded from a title compn. based on a Bu acrylate-allyl methacrylate-tert-butyl-3-isopropenylcumyl peroxide copolymer rubber dispersion grafted with acrylonitrile and styrene (prepn. of rubber and grafting procedure given) had impact strength 32 kJ/m², vs. 16 kJ/m² for an acrylonitrile-styrene graft copolymer with a similar acrylic rubber made without peroxide comonomer.

ST acrylic rubber graft copolymer molding compn; butylisopropenylcumyl peroxide copolymer acrylic rubber graft; impact resistance acrylic rubber graft; acrylonitrile styrene graft acrylic rubber; radical generator peroxide comonomer acrylic rubber

IT Impact-resistant materials

(manuf. of impact-resistant molding compns. modified with rubber contg. radical-forming groups)

IT Rubber, synthetic

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (acrylic, acrylonitrile- and styrene-grafted, manuf. of impact-resistant molding compns. modified with rubber contg. radical-forming groups)

IT Polymerization

(graft, manuf. of impact-resistant molding compns. modified with rubber contg. radical-forming groups)

IT Plastics, molded

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses) (thermo-, manuf. of impact-resistant molding compns. modified with rubber contg. radical-forming groups)

IT 178671-70-0P 178671-71-1P, Acrylonitrile-Allyl methacrylate-Butyl acrylate-tert-Butyl peroxyacrylate-Styrene graft copolymer

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(manuf. of impact-resistant molding compns. modified with rubber contg.
radical-forming groups)

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